

The Quandong Moth and other insects on quandong trees

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About this Publication- 1

- ❖ Quandong is a fruit native to Australia. A rich native insect fauna has evolved to live on the fruit and foliage of this tree.
- ❖ This publication is intended to assist quandong producers identify some of the insects found on quandong trees in south-eastern Australia
- ❖ Damage:
 - Quandong moth is the most damaging of quandong insects. Its larvae eat flesh of the fruit, and may destroy or downgrade up to 90% of fruit.
 - Leaf feeding insects, although sometimes fairly conspicuous, may not greatly affect fruit yield.
 - Scale insects may be damaging but on unsprayed trees they are usually controlled by natural enemies. Use of broad spectrum insecticides may kill these natural enemies.
 - Gall forming insects and bud mites (Family Eriophyidae) have been reported causing damage to some trees.
- ❖ Natural enemies
 - Quandong moth appears to have few effective natural enemies. Species of parasitic wasps have been recorded from eggs and larvae, but their incidence is not sufficient to reduce fruit damage.
 - Other insects are probably controlled by a range of natural enemies including generalist predators such as coccinellid beetles (ladybirds), lacewings and predatory mites, as well as parasitic wasps. These are all likely to be killed by broad spectrum insecticides.

About this Publication-2

❖ Management of quandong moth

- Monitoring: this publication shows how and when to monitor for quandong moth.
- For producers who opt for chemical control, timing of applications is critical. A mis-timed application is worse than none at all. Avoid calendar applications.
- Chemical control should aim to kill eggs or the young larvae before they damage fruit. Careful monitoring is essential. Only apply insecticides when necessary.
- No chemicals are recommended in this document. Check for chemicals which have permits on the website of the National Registration Authority (www.nra.gov.au).

The Quandong Moth

Paraepermenia santaliella (Lepidoptera: Epermeniidae)



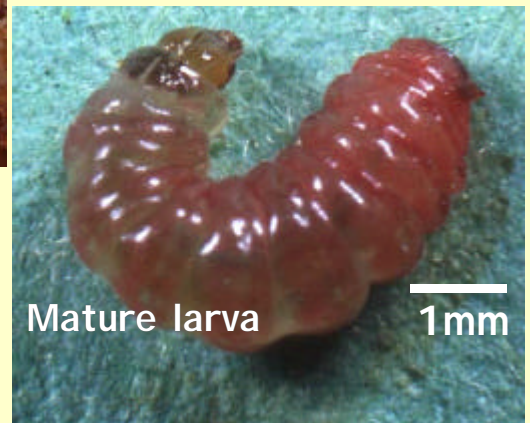
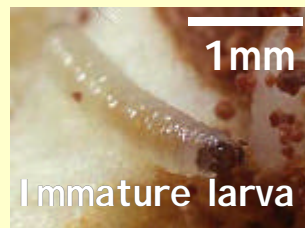
Eggs

Quandong moths lay their eggs into the calyx of fruit. The eggs are white when first laid and mature to yellow. Eggs are 0.35mm long and hatch in 5 days at 24°C.

Larvae

Larvae burrow into flowers or fruit and feed inside.

The immature larvae are less than 1mm long and yellow, the mature larvae are 6mm long and red.



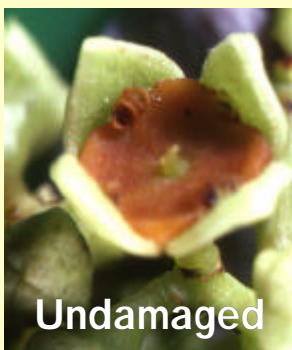
Adults

Adults are small grey moths 7-8mm long. They are not easily seen in the field. The sexes are not easily distinguished.

Quandong Moth Damage

Larvae of the quandong moth damage all stages of the quandong tree.

Damage to flowers



Larvae of the Summer generation of the quandong moth feed on flowers. They can destroy the reproductive parts of the flower and those with severe damage will not set fruit.

Damage to developing fruit

Larvae of the late Autumn-Winter generation of quandong moth damage the kernels and seed coats of developing fruit. Fruit that drops from the tree mid-year commonly has a high incidence of this type of damage. However, the majority of fruit drop is due to natural thinning, wind or stress.

Quandong Moth Damage

Damage to developing fruit

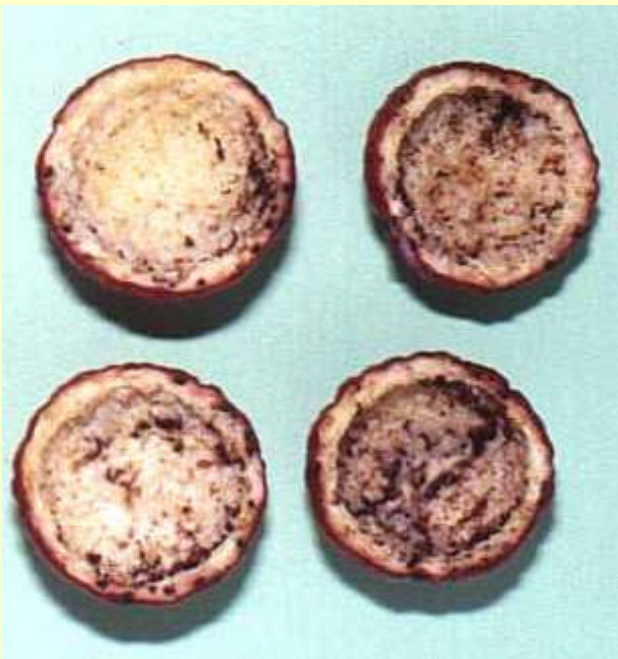


Kernel damage



Seed coat damage

Damage to mature fruit

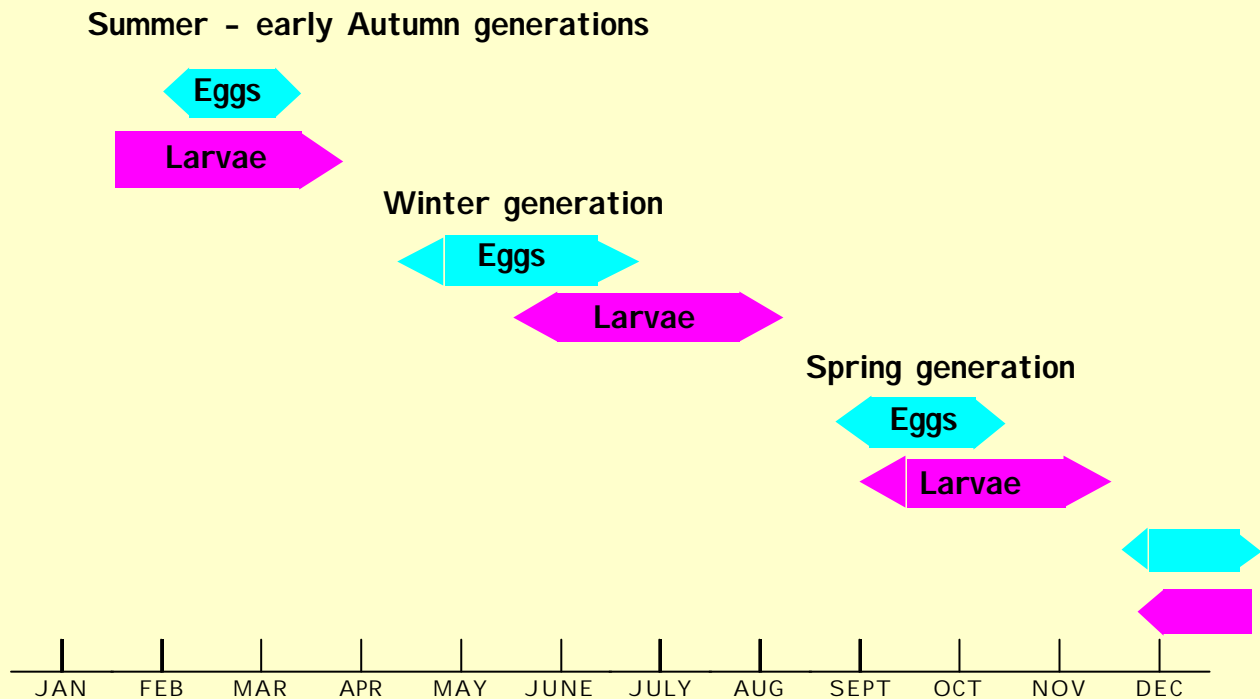


Flesh damage

As the seed coat hardens the flesh becomes the preferred feeding site for larvae of the Spring generation. Up to 10 mature larvae may feed on the flesh of a single quandong fruit, causing a severe level of damage.

Incidence of quandong moth

The quandong moth has three generations each year. General timing of the generations is shown in the diagram below.



Monitoring

What to look for:

- examine calyx of fruit for eggs.
- cut fruit open and look for damage or larvae

What you need to find eggs:

- x 10 hand lens
- Examine 100-200 fruit on 10-20 trees.
- Look especially in fruit which have open calices

When to look:

The diagram above indicates a range of times when each stage of the moth can be found. Actual times will vary within that range depending on the particular region.

Leaf feeding insects

These insects are occasionally found feeding on the leaves of quandong trees. At low levels they have little or no effect on fruit yield or quality. Several of these species occur commonly on *Eucalyptus* and *Acacia* trees.

"Leaf webbing moth"



Larvae of this moth web leaves together to make feeding shelters. Sometimes make shelters with fruit but do not appear to feed preferentially on fruit.

Wood White Butterfly *Delias aganippe* (Lepidoptera: Pieridae)

Larvae feed in groups on leaves.

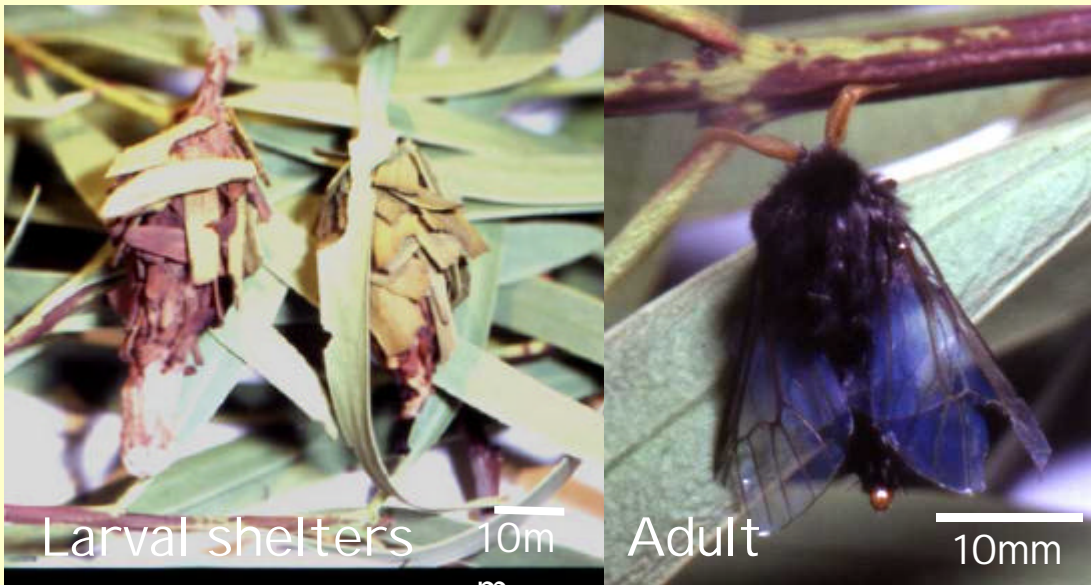


Leaf feeding insects

Leaf Case Moth

Hyalarcta huebneri (Lepidoptera: Psychidae)

Larvae build silken cases and feed inside. Feed mainly on leaves of quandong trees.



Genduara acedesta (Lepidoptera: Lasiocampidae)

Larvae feed on leaves of quandong trees.



Leaf feeding insects

CHRYSOMELID BEETLE

Edusa sp (Coleoptera: Chrysomelidae)

Larvae and adults both feed on leaves of quandong trees.



Gall forming insects

QUANDONG GALL MIDGE
(Diptera: Cecidiomyiidae)

Larvae of small fly cause galling on stems of quandongs. Larvae feed inside galls.



Scale insects on quandong trees

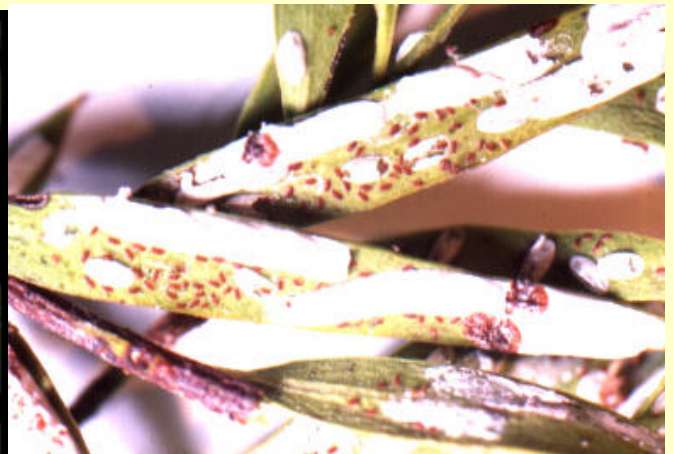
Scale insects suck sap from the leaves and woody parts of quandong trees. Outbreaks of scale insects may be induced by use of broad-spectrum insecticides.

QUANDONG COCCID

Cardiococcus forammifor
Hemiptera: Coccidae



SWAN HILL SCALE



ARMOURED SCALE

